

REMARKS CONCERNING THE AMENDMENTS

The above amendments were made in an effort to more clearly define the present invention and to respond to issues raised in the Office Action. Antecedent basis for the amendments may be found in the original specification in general and, for example:

- 1) For the amendment to claim 9, see Example 1 where ink receiving layers are coated adjacent to one another.
- 2) For the new claims 10-15, antecedent basis may be found generally in the specification, in original claims 1-9 (where the metals were listed) and in the examples, where nitrate and sulfate and chloride were specifically used.

RESPONSE TO THE REJECTIONS

Claims 1-15 have been rejected under 35 U.S.C. 103(a) as Unpatentable over Kondo (US 5,320,897)

Claims 1-19 Have Been Rejected Under 35 U.S.C. 103(a) as Obvious over Jones (US 4,649,064) in view of Applicant's Statement of the Art

Claims 1-16, 18 and 19 Have Been Rejected Under 35 U.S.C. 103(a) as Obvious over Akutsu (US 4,740,420) in view of Applicant's Statement of the Art

Claims 1-16, 18 and 19 Have Been Rejected Under 35 U.S.C. 103(a) as Obvious over Aono (U.S. 4,946,781) in view of Applicant's Statement of the Art

Each of these primary references (Kondo, Jones, Akutsu and Aono) and the rejections based thereon has been set forth identically, the Office Action asserting that each reference shows an ink-jet receiving layer comprising gelatin and a metal salt of a Group IIA or IIB metal and asserting that:

“Applicant acknowledges in his specification that the surface pH of ink receiving sheets is a result-effective parameter (see page 2, lines 5-9 and page 3, lines 8-12). Consequently, it would have been an obvious expedient to optimize the surface pH of the ink jet receiving sheets of the primary references.” Page 2 of Office Action.

The rejection asserts that it would be an obvious matter of choice to ascertain optimum operating conditions, specifically determining that a pH range for the surface sheet provides improved properties.

This rejection is in error for a number of reasons. The first and most important reason is that there must always be a specific target of optimization for one of ordinary skill in the art to consider before attempting to optimize the product. It is not obvious to consider each and every property in a material or layer, unless that specific property previously has been suggested as meaningful towards performance, and towards a specific property of performance by one of ordinary skill in the art. There are so many varied

properties that one could consider (such as molecular weight of binders, density of the layer, electrical conductivity of the layer, oxygen permeability of the layer, electrical resistance, flexibility, elasticity, acid value, base value, crosslink density, dispersivity, solubility, etc., etc.) that it is not even obvious to examine each and every one of these properties to determine if they have an effect on the actual performance of the material in a specific environment, such as in an ink-jet receiver layer. Even if one were motivated to search each of the properties and their effects, to be obvious, one must have an expectation that changing a property will have a specific type and degree of functional effect on the performance of the layer. For example, if one were to evaluate the effect of changing the oxygen permeability of an ink-jet receiving layer, there would not be an expectation that variations in such a property could impact the stability of colors in printed images. Without an expectation of the type and degree of effect that a variation in a property (even if attempting to optimize the product by its relationship to that property), it cannot be obvious to vary that property, especially where (as in the present case) that variation effects a significant beneficial effect on the properties of the layer that were not predictable prior to the work of Applicants.

The Examiner has acknowledged that the data in the specification “establishes that unexpected results are obtained with their pH parameter when calcium nitrate is employed with gelatin...), however, the Examiner apparently did not appreciate the broader teaching **and evidence** of unexpected results with other metals (within the IIA and IIB group) and with other anions. See Examples 8, 9 and 10, for example. The evidence of unexpected results is therefore much broader than first appreciated and is commensurate in scope with claim 1. It is therefore clear that Applicants have established unobviousness over the prior art for claims commensurate in scope with claim 1. Applicants have also provided claims of intermediate scope that are patentable under the same guidelines.

The Office Action has quoted two statements in the specification, attempting to assert that the “surface pH of ink receiving layers” is at least a target for investigation. Both the interpretation of the cited portions of the specification are in error, and the deviation from the pH ranges cited for other features is so significant that the finding of improvements from the change in surface pH at the range recited in the claims is unexpected.

The cited text from page 2, lines 5-8 for “surface pH” has nothing at all to do with surface pH. The quoted section actually states:

“PCT Patent Application 99-06,2z19 describes a composition useful for surface treating a substrate for ink jet printing comprising a salt of a divalent metal being soluble in an aqueous medium at about pH 7 to about pH 9, further comprising a carrier agent and a sizing agent. Indicia printed thereon will have improved print quality.

As can be seen, there is nothing relating to “surface pH in this disclosure, and the pH range for the coating solution (which can change after coating) is so far outside the recited range of less than 5, that ordinary investigation of the specifically lower end of the parameter at a different point in the manufacture of the article is not suggested by this teaching.

The cited text from page 3, lines 8-12 states:

“JP Application 59-078,885 discloses an ink-jet receiving sheet having a degree of sizing of 20 seconds or less, a surface pH value between 5 and 10 and containing at least one halide, sulphate or nitrate of magnesium or calcium at a coverage of 0.1-15 g/m².”

This disclosure, although identifying a specific range of surface pH within which optimization could be considered, does not provide any motivation or teaching to investigate outside the suggested range and does not suggest that improved results (as found by Applicants) would be found in a specific direction outside of the range.

Please note the accompanying Declaration of Dr. Alain Sismondi that the limitation in the claims of less than 5.0 is a significant limitation. The declaration shows that seven (7) examples ranging from surface pH levels of 5.1-5.2 (an overwhelming emphasis of the precise border of the lower limit of the 5-10 pH of the disclosure) display significant gloss deterioration. Gloss is an immediately observable image effect. The degree of deterioration at this precise point (5.1 to 5.2) is quite significant. The declaration (and ten examples in the specification on page 19) show that by dropping the pH level below 5, that the glossiness dramatically improves, with a scholastically valued amount 50% and more better than the best value above a surface pH of 5.0. This is an unexpected improvement in a specific property that is not suggested by the prior art. Even if it was “obvious to try” optimization

of surface pH (for unexplained and unexpected benefits), the results established by the declaration are on a property for which no relationship between surface pH and glossiness has been established, the degree of the benefits are significant far beyond expectations for conventional optimization, and there is no suggestion that examining a pH level outside a specific end of the range would produce any beneficial result, and especially neither the specific type of result nor the degree of that result.

The rejection cannot be sustained in view of this strong evidence of unexpected results and/or the lack of motivation in the cited art to investigate the specific properties.

There is no basis for asserting that the use of the specific pH in combination with gelatin **and** metal salts of Group IIA and IIB metals could be used as a coating on a substrate to provide an ink jet receiving layer that beneficially modifies the performance properties of the image. That is an unexpected property and an unexpected result that has been substantiated by comparative examples. The scope of claims is commensurate with the evidence presented.

This rejection is therefore in error and must be withdrawn.

CONCLUSION

All rejections have been shown to be in error. The references fail to teach the invention as claimed and do not indicate the unexpected properties that have been shown in the examples in the specification. The claims have been shown to be patentable over the art used in the rejections and all claims should be allowed.


The Examiner is invited to telephone Applicants' below-listed representative at (952)832.9090 to facilitate prosecution of this application.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to MAIL STOP: AMENDMENT; P.O. BOX 1450; Commissioner for Patents, Alexandria, VA 22313-1450 on MAY 26, 2004.

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Signature